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(54) Admission control at Internet telephony gateway according to network performance

(57) In a method and a system an Internet Protocol (IP) telephony gateway is given a threshold for the performance indicators of the RTCP, and only accepts an incoming call if the present value of the performance indicators are below the given threshold value. By monitoring the quality of ongoing calls, the IP telephony gateway determines whether or not to accept a new incoming call. The method for monitoring the ongoing calls can in particular be the RTCP mechanism, which in some cases already is implemented in the IP telephony gateway, and in which case no new mechanism for monitoring the ongoing calls is required. However, if in some application it should turn out to use another mechanism for monitoring ongoing calls this mechanism could of cause be used in stead or as a supplement. Also, other methods than using a threshold value for accepting/rejecting incoming calls can be used. For example, a function of one or several performance indicating values can be formed. The additional logic required is preferably software implemented making it possible to easily change threshold values, parameters used in the determination process etc.

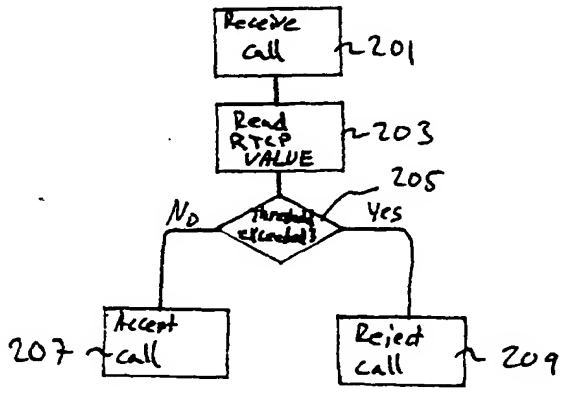

Fig. 2

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probe packet, determine if the core network is congested or not. If the core network is determined to be congested, the Internet Protocol (IP) telephony gateway rejects the call. Otherwise, the call is accepted and establishment of the call proceeds.

[0009] However, all present methods for ensuring a transmission path having a high quality are associated with drawbacks. Thus, the first method requires per-flow states to be installed in each core router. Furthermore, the time used for the resource reservation message to travel through the core network can significantly delay the establishment of the call. The second method can only be used when it can be guarantied that the core network is over-dimensioned, otherwise the performance of the network will be significantly reduced. The third method delays the call establishment. Also, each core router has to be provided with the proper software in order to treat the probe packets in a proper way.

SUMMARY

[0010] It is an object of the present invention to overcome the problems as outlined above and to provide a method and a system, which can ensure a transmission path having a high quality over an Internet Protocol (IP) core network, and which method is fast and which is inexpensive to implement in an existing Internet Protocol (IP) core network.

[0011] This object and others are obtained by a method and a system wherein the Internet Protocol (IP) telephony gateway is given a threshold for the performance indicators of the RTCP, and only accepts an incoming call if the present value of the performance indicators are below the given threshold value.

[0012] In particular, the Internet Protocol (IP) telephony gateway collects statistics for a number of on-going calls and based on the collected statistics determines whether or not to admit a new call. For example, an average value for a number of calls can be calculated

[0013] Thus, by monitoring the quality of ongoing calls, the IP telephony gateway determines whether or not to accept a new incoming call. The method for monitoring the ongoing calls can in particular be the RTCP mechanism, which in some cases already is implemented in the IP telephony gateway, and in which case no new mechanism for monitoring the ongoing calls is required. However, if in some application it should turn out to use another mechanism for monitoring ongoing calls this mechanism could of cause be used instead or as a supplement. Also, other methods than using a threshold value for accepting/rejecting incoming calls can be used. For example, a function of one or several performance indicating values can be formed.

[0014] The additional logic required is preferably software implemented making it possible to easily change threshold values, parameters used in the determination process etc.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The present invention will now be described in more detail and with reference to the accompanying drawings, in which:

- Fig. 1 is a general view of an Internet telephony network, and
- Fig. 2 is a flowchart illustrating different steps carried out when accepting an Internet Protocol (IP) telephony call in an IP telephony gateway.

DESCRIPTION OF PREFERRED EMBODIMENTS

[0016] In Fig. 1, a general view of an Internet telephony network 101 is shown. The network 101 comprises a number of subscribers 103 connected to a number of Access Networks (AN), such as the Access Networks 105 and 107. Each Access Network is connected to an Internet Protocol (IP) telephony gateway. In the example shown in Fig. 1, the Access Network 105 is connected to an IP telephony gateway 109, and the Access Network 107 is connected to an IP telephony gateway 111. The IP telephony gateways 109 and 111 are interconnected by an Internet Protocol (IP) core network 113.

[0017] Furthermore, each of the gateways 109 and 111 has access to the RTCP mechanism as indicated by the reference numeral 115.

[0018] In Fig.2, a flowchart illustrating different steps performed in an IP telephony gateway as shown in Fig. 1, when accepting an incoming call is shown. Thus, when a call is to be established between a first subscriber connected to a first IP telephony gateway and a second subscriber connected to a second IP telephony gateway, for example a first subscriber connected to the Access Network 105 and a second subscriber connected to the Access Network 107, the following steps can be performed.

[0019] First, in a step 201, a call from a subscriber is received by the IP telephony gateway. Thereupon in a step 203 the current values of the RTCP mechanism are read. Next in a step 205 it is checked if one or several of the values read from the RTCP

[0020] If in step 205 it is determined that no values read from the RTCP mechanism exceed such a pre-set threshold value, the call establishment procedure is allowed to continue as usual in a step 207. If, on the other hand, it is determined in the step 205 that at least one of the threshold values is exceeded, the IP telephony gateway rejects the call and transmits a negative acknowledgement message back to the subscriber who has initiated the call, in a step 209.

[0021] In particular the IP telephony gateway in step 203 reads the "FRACTION_LOST" and "INTERARRIVAL JITTER" values from the RTCP mechanism. The FRACTION_LOST value indicates the amount of packets lost between two subsequent reports. The INTERARRIVAL JITTER value indicates the mean deviation in

spacing at the receiver and at the sender.

12. A computer program according to any of claims 9 - 11, **characterized in that** the determination if the incoming call is to be accepted is made using a threshold value.

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EUROPEAN SEARCH REPORT

Application Number
EP 00 85 0110

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 0 999 674 A (LUCENT TECHNOLOGIES INC) 10 May 2000 (2000-05-10) * paragraph '0004! * * paragraph '0020! - paragraph '0022! *	1,4,5,8, 9,11	H04L29/06 H04L12/64 H04L12/56
T	BRESLAU, LEE; KNIGHTLY, EDWARD W.; SHENKER, SCOTT; STOICA, ION: "Endpoint Admission Control: Architectural Issues and Performance" PROCEEDINGS OF ACM SIGCOMM 2000, 28 August 2000 (2000-08-28) - 1 September 2000 (2000-09-01), pages 57-69, XP002152149 1. Introduction	1,5,9	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)
H04L
H04M

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	7 November 2000	Cremer, J

CATEGORY OF CITED DOCUMENTS
X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
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E : earlier patent document, but published on, or after the filing date
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